REMARKS

Claims 1-8 were pending.

Applicants hereby cancel claims 1-8 and add new claims 9-52. The application is now in condition for examination on the merits, which action is requested. If any further issues remain to be resolved prior to examination, the Examiner is respectfully invited to contact the undersigned at the telephone number shown below.

Respectfully Submitted,

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MARKED-UP VERSION SHOWING CHANGES MADE

IN THE CLAIMS:

Please cancel claims 1-8 and add new claims 9-52 as follows below:

9. (New) A method for obtaining a phage particle comprising an antibody fragment directed against an antigen associated with the surface of target cells in a heterogeneous cell population, wherein said heterogeneous cell population comprises non-target cells and target cells in a heterogeneous mixture, the method comprising:

(a) providing a library of phage particles that express antibody fragments on the surface of the phage particles;

(b) incubating said library of phage particles with said heterogeneous cell population under conditions that allow binding of the antibody fragment expressed on the surface of the phage particles to said antigen associated with said target cells;

(c) separating said target cells and phage particles bound therewith from phage particles not bound to said target cells; and

(d) recovering the phage particles bound to the target cells.

10. (New) A method according to claim 9, wherein the separating of said target cells and phage particles bound therewith from phage particles not bound to said target cells is accomplished by flow cytometry.

11. (New) A method according to claim 9, further comprising isolating antibody fragments that bind to said target cells.

12. (New) A method according to claim 10, wherein said target cells and/or said non-target cells in said heterogeneous cell population are detectably labeled.

13. (New) A method according to claim 12, wherein said detectably labeled cells are labeled with a fluorescent label.

14. (New) A method according to claim 13, wherein said fluorescent label is a fluorescein label.

15. (New) A method according to claim 9, further comprising repeating steps (b) through (d) one or more times.

16. (New) A method according to claim 9, wherein the library of phage particles comprises phage particles expressing Fab or single chain Fv (scFv) antibody fragments.

17. (New) A cell-type specific library of phage particles produced according to the method of claim 9.

18. (New) An antibody or antibody fragment obtained using the cell-type specific library of phage particles of claim 17.

19. (New) A method for obtaining a phage particle comprising an antibody fragment directed against an antigen associated with the surface of target cells, the method comprising:

(a) providing a library of phage particles that express antibody fragments on the surface of the phage particles;

(b) incubating said library of phage particles with non-target antigens;

(c) incubating said library of phage particles with said target cells, under conditions that allow binding of the antibody fragment expressed on the surface of the phage particles to said antigen associated with said target cells;

(d) separating said target cells and phage particles bound therewith from phage particles not bound by target cells; and

(e) recovering the phage particles bound to the target cells,

wherein step (c) may precede step (b).

20. (New) A method according to claim 19, wherein the non-target antigens are immobilized.

21. (New) A method according to claim 20, wherein the non-target antigens are immobilized by coating a solid surface.

22. (New) A method according to claim 19, wherein the non-target antigens are associated with the surface of non-target cells.

23. (New) A method according to claim 22, wherein the separating of said target cells and phage particles bound therewith from phage particles not bound by target cells is accomplished by flow cytometry.

24. (New) A method according to claim 19, further comprising isolating antibody fragments that bind to said target cells.

25. (New) A method according to claim 23, wherein said target cells and/or said non-target cells are detectably labeled.

26. (New) A method according to claim 25, wherein said detectably labeled cells are labeled with a fluorescent label.

27. (New) A method according to claim 26, wherein the fluorochrome-labeled antibodies are phycoerythrin (PE)-labeled, peridinin chlorophyll protein (PerCP)-labeled or fluorescein isothiocyanate (FITC)-labeled.

28. (New) A method according to claim 19, further comprising repeating steps (b) through (e) one or more times.

29. (New) A method according to claim 19, wherein the library of phage particles comprises phage particles expressing Fab or single chain Fv (scFv) antibody fragments.

30. (New) A cell-type specific library of phage particles produced according to the method of claim 19.

31. (New) An antibody or antibody fragment obtained using the cell-type specific library of phage particles of claim 30.

32. (New) An antibody according to claim 31, having specificity for a single antigen.

33. (New) An antibody according to claim 32, wherein said single antigen is a cell surface antigen.

34. (New) An antibody according to claim 33, wherein the cell surface antigen is a cell surface antigen of a human cell.

35. (New) An antibody according to claim 34, wherein the human cell is a fetal bone marrow cell.

36. (New) An antibody according to claim 34, wherein the human cell is a human blood cell.

37. (New) An antibody according to claim 36, wherein the human blood cell is a leucocyte.

38. (New) An antibody according to claim 37, wherein the leucocyte is an eosinophil.

39. (New) An antibody according to claim 37, wherein the leucocyte is a monocyte.

40. (New) An antibody according to claim 36, wherein the human blood cell is a T cell.

41. (New) An antibody according to claim 36, wherein the human blood cell is a CD3+ cell.

42. (New) An antibody according to claim 36, wherein the human blood cell is a B cell.

43. (New) An antibody according to claim 36, wherein the human blood cell is a CD20+ cell.

44. (New) An antibody according to claim 36, wherein the human blood cell is a CD4+ cell.

45. (New) An antibody according to claim 36, wherein the human blood cell is a CD10+ cell.

46. (New) An antibody according to claim 32, wherein the single antigen is tetanus toxoid (TTX), Group B Streptococcal type II capsular polysaccharide (GBS), surfactin protein A (SpA), thyroglobulin (Tg), Von Willebrand factor (VWF), an IgG paraprotein, the HMG domain of T cell-specific transcription factor TCF-1, epithelial glycoprotein EGP-2, ICAM-1 or homeobox protein PBX1a.

47. (New) An antibody according to claim 32, wherein the antibody comprises one or more variable regions selected from $v_\kappa 1$, $v_\kappa 2$, $v_\kappa 3$, $v_\kappa 4$, $v_\lambda 1$, $v_\lambda 2$ and $v_\lambda 3$.

48. (New) A phage antibody (Phab) produced by the method of claim 9 or of claim 19.

49. (New) A phage antibody (Phab) according to claim 48, comprising a gene III-scFv fusion.

50. (New) A phage antibody (Phab) according to claim 49, wherein the scFv fragment comprises one or more variable regions selected from $v_\kappa 1$, $v_\kappa 2$, $v_\kappa 3$, $v_\kappa 4$, $v_\lambda 1$, $v_\lambda 2$ and $v_\lambda 3$.

51. (New) A phage antibody (Phab) according to claim 50, wherein the scFv further comprises a v_H region.

52. (New) A phage antibody (Phab) according to claim 51, wherein the scFv further comprises a J_κ region.